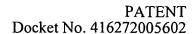
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. Application Number 10/698,824 Filing Date **TRANSMITTAL** October 30, 2003 First Named Inventor **FORM** Bob B. BUCHANAN Art Unit Not Yet Assigned (to be used for all correspondence after initial filing) Examiner Name Not Yet Assigned Attorney Docket Number 9 Total Number of Pages in This Submission 416272005602

ENCLOSURES (Check all that apply)					
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Bob B. BUCHANAN et al.

Serial No.: 10/698,824

Filing Date: October 30, 2003

For: STABILIZATION OF

HYPOALLERGENIC,

HYPERDIGESTIBLE PREVIOUSLY

REDUCED PROTEINS

Examiner: Not Yet Assigned

Group Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97 & 1.98

Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicants submit for consideration in the above-identified application the documents listed on the attached Form PTO-1449. Copies of the documents were previously submitted in an Information Disclosure Statement and/or Office Action, directed to the related application Serial Number 09/779,375 filed February 7, 2001, and, accordingly, copies are not included herewith. This protocol conforms with 37 C.F.R. §1.98(d) and M.P.E.P. 609(A)(2). The Examiner is requested to make these documents of record in the application.

This Information Disclosure Statement is submitted:

\boxtimes	Withi	n three months of the application filing date or before mailing of a first
	Office	e Action on the merits; accordingly, no fee or separate requirements are
	requi	red.
	After	receipt of a first Office Action on the merits but before mailing of a final
	Office	e Action or Notice of Allowance.
ı		A fee is required. A check in the amount of * is enclosed.
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		attached to this submission in duplicate.
•		A Certification under 37 C.F.R. § 1.97(e) is provided below; accordingly;
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	After	mailing of a final Office Action or Notice of Allowance, but before payment
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		A Certification under 37 C.F.R. § 1.97(e) is provided below and a Fee
		Transmittal form (PTO/SB/17 is attached to this submission in duplicate.

Applicants would appreciate the Examiner initialing and returning the Form PTO-1449, indicating that the information has been considered and made of record herein.

The information contained in this Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorizes the Commissioner to charge the

cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing 416272005602. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: December 4, 2003

Respectfully submitted,

Otis Littlefield

Registration No. 48,751

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San Francisco, California 94105-2482

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Sheet 1 of 5 Docket Number 416272005602 Application Number 10/698,824 Form PTO-1449 INFORMATION DECLOSI Applicants CITATION Bob B. BUCHANAN et al. IN AN APPLACE Filing Date October 30, 2003 Group Art Unit Not Yet Assigned (Use several sheets if necessary) Mailing Date December 4, 2003

U.S. PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Name	Class	Subclass	Filing Date If Appropriate
	1.	Apr. 1974	3,803,326	Craig et al.			
	2.	Sep. 1983	4,405,648	Atsumi et al.			
	3.	Jul. 1991	5,028,419	Pigiet			

FOREIGN PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Country	Class	Subclass	Translation YES NO	
	4.	Jul. 1975	1 400 972	Great Britain				
	5.	Jun. 1976	1 420 843	Great Britain				
	6.	May 1994	WO 96/12799	WIPO				

OTHER DOCUMENTS

(including author, title, Date, Pertinent Pages, Etc.)

Examiner Initials	Ref. No.	Title
	7.	Holmgren, A. (1979) "Reduction of disulfides by thioredoxin. Exceptional reactivity of insulin and suggested functions of thioredoxin in mechanism of hormone action" <i>J. Biological Chemistry</i> 254 (18): 9113-9119.
	8.	Schernthaner, G. (1993) "Immunogenicity and allergenic potential of animal and human insulins" Diabetes care (Suppl 3): 155-165.
	9.	Astwood et al., "Stability of Food Allergens to Digestion in Vitro," Nature Biotechnology, 14(10): 1269-1273, (1996).
	10.	Birk, "Proteinase Inhibitors from Plant Sources," Method Enz., 45:695-739 (1976).
	11.	Birk, Y., "The Bowman-Birk Inhibitor," Int. J. Peptide Protein Res. 25:113-131 (1985).
	12.	Blomback et al. "Enzymic reduction of disulfide bonds in fibrinogen by the thioredoxin system. I identification of reduced bonds and studies on reoxidation process" Thrombosis Research 4(1):55-75 (1974).
	13.	Bodenstein-Lang, J. et al., "Animal and Plant Mitochondria Contain Specific Thioredoxins," FEBS Lett., 258:22-26 (1989).

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PTO/SB/08 (2-92) Sheet 2 of 5

Application Number 10/698,824 Docket Number 416272005602 Form PTO-1449 INFORMATION DISCUSSIFIE CITATION **Applicants** Bob B. BUCHANAN et al. IN AN APPLICATION (Use several sheets if necessary) Filing Date October 30, 2003 Group Art Unit Not Yet Assigned Mailing Date December 4, 2003 14. Buchanan et al., "Thioredoxin: A Multifunctional Regulatory Protein with a Bright Future in Technology and Medicine," Archives of Biochemistry and Biophysics, 314(2): 257-260, (1994).Buchanan et al., "Thioredoxin-linked Mitigation of Allergic Responses to Wheat," 15. Proceedings of the National Academy of Sciences of the United States of America, 94(10): 5372-5377 (1997). Burks, A.W. et al. (1992), "Allergenicity of peanut and soybean extracts altered by chemical and thermal denaturation in patients with atopic dermatitis and positive food challenges," J. 16. Allergy Clin. Immunol. 90:889-897. Bushuk, W., et al., "Wheat Cultivar Identification by Gliadin Electrophoregrams. I. 17. Apparatus, Method and Nomenclature," Can. J. Plant Sci. 58:505-515 (1978). Crawford et al.. "Evidence for Function of the Ferredoxin/Thioredoxin System in the 18. Reductive Activation of Target Enzymes of Isolated Intact Chloroplasts," Arch. Biochem. Biophys. 271(1):223-239 (1989). Dahle et al., "The Weakening Action of Thioctic Acid in Unyeasted and Yeasted Doughs," 19. Cereal Chem. 43:682-688 (1966). De la Motte-Guery, F. et al., "Mutation of a Negatively Charged Amino Acid in Thioredoxin 20. Modifies its Reactivity with Chloroplastic Enzymes," Eur. J. Biochem. 196:287-294 (1991). Decottignies, P. et al. (1988) "Primary Structure of the Light-dependent Regulatory Site of 21. Corn NADP-Malate Dehydrogenase", The Journal of Biological Chemistry 263(24):11780-11785. Droux, M. et al. (1987) "Ferredoxin-Thioredoxin Reductase, an Iron-Sulfur Enzyme Linking 22. Light to Enzyme Regulation in Oxygenic Photosynthesis: Purification and Properties of the Enzyme from C.sub.3, C.sub.4, and Cyanobacterial Species", Archives of Bioche. 23. Edman et al., "Sequence of Protein Disulphide Isomerase and Impications of its Relationship to Thioredoxin," Nature, 317(19):267-270 (1985). Elsayed, S. et al. (1971) "Characterization of a major allergen (cod). Observations on effect 24. of denaturation on allergenic activity," J. Allergy 47:283-291. Esch et al. (1989), "Identification and localization of allergenic determinants on Grass Group 25. I antigens using monoclonal antibodies," J. Immunol. 142:179-184. Fickenscher, K., et al., "Purification and Properties of the Cytoplasmic Glucose-6-Phosphate 26. Dehydrogenase from Pea Leaves," Arch. Biochem. Biophys. 247:393-402 (1986). Florencio et al., "An NADP/Thioredoxin System in Leaves: Purification and Characterization 27. of NADP-Thioredoxin Reductase and Thioredoxin ih from Spinach," Arch. Biochem. Biophys., 266(2):496-507 (1988). DATE CONSIDERED: **EXAMINER:** EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

Docket Number 416272005602 Application Number 10/698,824 Form PTO-1449 Applicants INFORMATION DISCLOSURE CITATION IN AN APPLICATION Bob B. BUCHANAN et al. (Use several sheets if necessary) Filing Date October 30, 2003 Group Art Unit Not Yet Assigned Mailing Date December 4, 2003 28. Frick et al., "Immunoglobulin E Antibodies to Pollens Augmented in Dogs by Virus Vaccines," Am. J. Vet. Res., 44(3):440-445 (1983). Holmgren (1985), "Thioredoxin," Ann. Rev. Biochem. 54:237-271. 29. Holmgren et al. Enzymic reduction of disulfide bonds by thioredoxin. The reactivity of 30. disulfide bonds in human choriogonadotropin and its subunits. European J. Biochemistry 70(2):377-83 1976. Holmgren et al., "Thioredoxin and Glutaredoxin Systems" J. Biol. Chem., 264(24):13963-31. 13966 (1989). Jacquot, J.-P., et al., "Enzyme Regulation in C.sub.4 Photosynthesis.sup.1,2" Plant Physiol. 32. 68:300-304 (1981). Johnson et al., "Reduction of Purothionin by the Wheat Seed Thioredoxin System," Plant 33. Physiol., 85:446-451 (1987). Johnson, T.C., et al., "Thioredoxin and NADP-Thioredoxin Reductase from Cultured Carrot 34. Cells," Planta 171:321-331 (1987). Jones, B.L., et al. "Amino Acid Sequences of the Two alpha-Purothionins of Hexaploid 35. Wheat," Cereal Chem. 54:511-523 (1977). Kahlert et al., "Epitope Analysis of the Allergen Ovalbumin With Monoclonal Antibodies 36. and Patients'IgE," Molecular Immunology, 29(10):1191-1201 (1992). Kasarda, D.D., et al., "Wheat Proteins," Adv. Cer. Sci. Tech. 1:158-236 (1976). 37. Kassel, B., et al., "The Basic Trypsin Inhibitor of Bovine Pancreas," Biochem. Biophys, Res. 38. Commun. 20:463-468 (1965). Kobrehel, K. et al., "Isolation and Partial Characterisation of Two Low Molecular Weight 39. Durum Wheat (Triticum durum) Glutenins," J. Sci. Food Agric. 48:441-452 (1989). Laemmli, "Cleavage of Structural Proteins During the Assembly of the Head of 40. Bacteriophage T4" Nature 227:680-685 (1970). MacRitchie, F., et al., "Flour Polypeptides Related to Wheat Quality," Adv. Cer. Sci. Tech. 41. 10:79-145 (1990). 42. Marcus, F. et al. (1988) "Comparative amino acid sequence of fructose-1,6-bisphosphatases: Identification of a region unique to the light-regulated chloroplast enzyme", Proc. Natl. Acad. Sci. USA 85:5379-5383. Matsuda et al., "Reduction of Ovomucoid Immunogenic Activity on Peptic Fragmentation 43. and Heat Denaturation," Agric. Biol. Chem., 49(7):2237-2241 (1985). Miki, J. et al. (1988) "The .gamma.-subunit of ATP synthase from spinach chloroplasts 44. Primary structure deduced from the cloned cDNA sequence" FEBS 232(1):221-226. DATE CONSIDERED: **EXAMINER:**

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in

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Form PTO-1449 Docket Number 416272005602 Application Number 10/698,824 INFORMATION DISCLOSURE CITATION **Applicants** IN AN APPLICATION Bob B. BUCHANAN et al. Filing Date October 30, 2003 Group Art Unit Not Yet Assigned (Use several sheets if necessary) Mailing Date December 4, 2003 Morton, J.I. et al. (161), "Immunochemical Studies of Modified Ovomucoids." Arch. 45. Biochem. Biophys. 93:661-665. Muller, E.D. Thioredoxin deficiency in yeast prolongs S phase and shortens the G1 interval 46. of the cell cycle. J. Biological Chemistry 266 (14): 9194-9202 May 15, 1991. Muller, et al., "Thioredoxin is Essential for Photosynthetic Growth" J. Biol. Chem. 264:4008-47. 4014 (1989). Nishiyama et al., "Reactivity of Sulfhydryls in Reduced Gluten with Lipid Hydroperoxides," 48. Agric. Biol. Chem., 51(5):1291-1297 (1987). Osborne, T.B., et al., "Proteins of the Wheat Kernel," Amer. Chem. J. 15:392-471 (1983). 49. Porter, M.A., et al. (1988) "Characterization of the Regulatory Thioredoxin Site of 50. Phosphorinulokinse", The Journal of Biological Chemistry 263(1):123-129. Raines, C.A. et al. (1988) "Chloroplast fructose-1,6-bisphosphatase: the product of a mosaic 51. gene", Nucleic Acids Research 16:7931-7942. Rothenbuhler et al., "Disulfide Reduction and Molecular Dissociation Improves the 52. Proteolysis of Soy Glycinin by Pancreatin in vitro," Journal of Food Science, 51(6):1479-1482, (1986). Russel et al, "Sequence of Thioredoxin Reductase from Escherichia coli," J. Biol. Chem., 53. 263(18):9015-9019 (1988). 54. Ryan, C.A. et al., "Proteinase Inhibitors," The Biochemistry of Plants, 6:351-370 (1981). Sapirstein, H.D., et al., "Computer-Aided Analysis of Gliadin Electropheregrams. I. 55. Improvement of Precision of Relative Mobility Determination by Using a Three Reference Band Standardization," Cereal Chem. 62:372-377 (1985). Scheibe, R., et al., "Chloroplast Glucose-6-Phosphate Dehydrogenase: Km Shift upon Light 56. Modulation and Reduction," Arch. Biochem. Biophys. 274:290-297 (1990). Schernthaner, G. "Immunogenicity and allergenic potential of animal and human insulins" 57. Diabetes care 16 (Suppl 3):155-65. Dec. 1993. Schiavo, G. et al. (1990) "An Intact Interchain Disulfide Bond Is Required for the 58. Neurotoxicity of Tetanus Toxin", Infection and Immunity 58(12):4136-4141. Shewry, P.R., et al., "Seed Storage Proteins of Economically Important Cereals," Adv. Cer. 59. Sci. Tech. 7:1-83 (1985). Suske, G., et al., "NADPH-Dependent Thioredoxin Reductase and a New Thioredoxin from Wheat," Z. Naturforsch. C., 34:214-221 (1979). 60. Tatham, A.S., et al., "Structural Studies of Cereal Prolamins, Including Wheat Gluten," Adv. 61. Cer. Sci. Tech. 10:1-78 (1990). DATE CONSIDERED: **EXAMINER:**

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PTO/SB/08 (2-92) Sheet 5 of 5

Form PTO-1449
INFORMATION DISCLOSURE OF ATION
IN AN APPLICATION

Docket Number 416272005602 Application Number 10/698,824
Applicants

Bob B. BUCHANAN et al.

(Use several sheets if necessary) Filing Date October 30, 2003

Group Art Unit Not Yet Assigned

Mailing Date December 4, 2003

62.	Tsang, M.LS., "Thioredoxin/Glutaredoxin System of Chlorella," Plant Physiol. 68:1098-1104 (1981).
63.	Wada et al., "Purothionin: A Seed Protein with Thioredoxin Activity," FEBS Letters, 124(2):237-240 (1981).
64.	Watt, D. D., et al, "Effects on Lethality of Toxins in Venom from the Scorpion Centruroides Sculpturatus by Group Specific Reagents," Toxicon 10:173-181 (1972).
65.	Wide et al., "Diagnosis of Allergy by an In-Vitro Test for Allergen Antibodies," The Lancet, pp. 1105-1107 (Nov. 25, 1976).
66.	Wolosiuk, R.A., et al., "Thioredoxin and Glutathione Regulate Photosynthesis in Chloroplasts," Nature 266:565-567 (1977).
67.	Yamada, "Inactive Debranching-Enzyme in Rice Seeds, and its Activation," Carbohydrate Research, 90:253-157 (1981).

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